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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,788	06/28/2001	Kenichi Nishikawa	040894-5685	9631

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EXAMINER

ROY, SIKHA

ART UNIT PAPER NUMBER

2879

DATE MAILED: 10/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/892,788

Applicant(s)

NISHIKAWA, KENICHI

Examiner

Sikha Roy

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 28 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-16 is/are allowed.
- 6) ☐ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 112***

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 1 in the limitation reciting 'the tint of the marking layer through the glaze layer is 3 or less in brightness as well as 3 or less in chroma or 4 or less in brightness as well as 2 or less in chroma specified by JIS: Z8721' the values from the standard may be subjected to change and hence these values incorporated by reference of standards render the claim indefinite.

Claims 2-11 are rejected as being dependent on the rejected base claim 1.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0959542 A1 to Sugimoto et al. in view of U. S Patent 6,114,054 to Klein et al.

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Sugimoto et al. disclose (page 11 line 29, Fig.3) a spark plug comprising of an insulator with a glaze layer 2d formed on the surface. Sugimoto et al. further disclose (page 2 line 42,43, page 4 lines 30,31) that the amount of Pb contained in the glaze is remarkably reduced to 1% by weight or less as reduced to PbO.

Claim 1 differs from Sugimoto et al. in that Sugimoto et al. do not exemplify a marking layer formed on the insulator underneath the glaze layer so that the marking layer can be seen through the glaze layer.

Klein et al. in relevant art of coloring ceramic surfaces disclose (column 1 lines 66,67, column 2 lines 1-5) a marking layer (pigment layer) applied to the ceramic body and subsequently coated with a glaze. It is to be noted that this marking layer can be used for marking or applying color pattern for decoration of the ceramic object.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include a marking layer on the ceramic insulator surface subsequently coated with glaze layer as suggested by Klein et al. of the spark plug of Sugimoto et al. for marking or applying color pattern for decoration purpose.

The limitation reciting the tint of the marking layer seen through the glaze layer being 3 or less in brightness as well as 3 or less in chroma or 4 or less in brightness as well as 2 or less in chroma specified by JIS: Z8721 is considered to be inherent provided the marking layer and the glaze layers comprise the same components in same predetermined mass %.

Regarding claim 2 Sugimoto et al. disclose (page 7 line 43) the glaze layer further comprises Zn component.

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Regarding claim 3 Sugimoto et al. disclose (page 15, Table 1) Zn present in the glaze layer in an amount of 21 mol.% as reduced to ZnO. Sugimoto et al. disclose (page 7 line 43) Zn present in the glaze layer in an amount of 10-25% by weight (12-30 mol%) as reduced to ZnO.

Regarding claims 4,5 and 6 Klein et al. disclose (column 1 lines 16-19) the pigments used in the marking layer comprise colored oxides of iron, chromium, manganese.

### ***Allowable Subject Matter***

Claims 12-16 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

Regarding claim 12, the references of the Prior Art of record fails to teach or suggest a spark plug with the combination of the limitations as set forth in claim 12, and specifically the limitation of marking layer comprising 30 to 60 mass% of an Fe component in terms of  $\text{Fe}_2\text{O}_3$  and 10 to 40 mass % of a Cr component in terms of  $\text{Cr}_2\text{O}_3$ .

Claims 13-16 are allowable for the reasons given in claim 12 because of their dependency status from claim 12.

Claims 7-11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 7 the references of the Prior Art of record fails to teach or suggest a spark plug with the combination of the limitations as set forth in claim 7, and specifically the limitation of the marking layer comprising 30 to 60 mass% of an Fe component in terms of  $\text{Fe}_2\text{O}_3$  and 10 to 40 mass % of a Cr component in terms of  $\text{Cr}_2\text{O}_3$ .

Claim 8 would be allowable being dependent on the claim 7.

Regarding claim 9 the references of the Prior Art of record fails to teach or suggest a spark plug with the combination of the limitations as set forth in claim 9, and specifically the limitation of the marking layer comprising 10 to 40 mass% of a Co component in terms of  $\text{CoO}$ .

Regarding claim 10 the references of the Prior Art of record fails to teach or suggest a spark plug with the combination of the limitations as set forth in claim 10, and specifically the limitation of the marking layer comprising 0.5 to 15 mass% of a Ni component in terms of  $\text{Ni}_2\text{O}_3$ .

Regarding claim 11 the references of the Prior Art of record fails to teach or suggest a spark plug with the combination of the limitations as set forth in claim 11, and specifically the limitation of the marking layer comprising 0.5 to 15 mass% in total of at least one of an Al component and a Ba component, the Al component being in terms of  $\text{Al}_2\text{O}_3$  and the Ba component in terms of  $\text{BaO}$ .

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with references to pigments used for markings on ceramics.

U. S. Patent 5,080,718 to Sullivan et al.

U. S. Patent 5,273,575 to de Saint Romain.

U. S. Patent 5,753,026 to Kuntz et al.


U. S. Patent 6,287,163 to Tanaka et al.


### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (703) 308-2826. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
Sikha Roy  
Patent Examiner  
Art Unit 2879

  
NIMESHKUMAR D. PATEL  
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